



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/313,058	05/17/1999	J. RICHARD AYLWARD	02103/354001	3409
26162	7590	05/19/2005	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			MEI, XU	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/313,058		AYLWARD ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Xu Mei		2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 2644

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Karagosian et al (US-5,727,068, hereafter, Karagosian).

Regarding claims 1-21, Karagosian discloses claimed invention of a method for processing multi-channel audio signals or method for decoding an encoded multi-channel audio signal or an apparatus for processing multi-channel audio signals as recited. Descriptions of Figures 1-3, 6 in columns indicated the decoder 200 has three base modes of operation: surround-dominant mode, center-dominant mode and left-right mode (i.e., read on the first and second normalization mode as claimed). Controller 204 steers the operating mode of decoder 200 using N and P control signals. When the P control signal is at or near its maximum positive value and the N control signal is at or

Art Unit: 2644

near zero, then decoder 200 operates in surround-dominant mode. When the P control signal is at or near zero and the N control signal is at or near its maximum negative value, then decoder 200 operates in center-dominant mode. When both the P and N control signals have values at or near zero, then decoder 200 operates in left-right mode. Thus, decoder 200 operates in (i) surround-dominant mode when controller 204 determines that the input audio signals have a maximum positive correlation (i.e., the signals are in phase), (ii) in center-dominant mode when controller 204 determines that the input audio signals have a maximum negative correlation (i.e., the signals are out of phase) and in (iii) left-right mode when the audio input channels are uncorrelated or have a relative phase shift of 90 degree (determining a degree of correlation of different channel signals).

Decoder 200 additionally operates in combination modes that combine any of the three base modes to varying degrees when controller 204 determines either a positive or negative correlation but which is not maximum. In this case, both the P and N control signals have a non-zero voltage but are not at their maximum or minimum values. For example, if controller 204 determines that the encoded input channels are positively correlated, but not to a maximum extent, then the decoder 200

Art Unit: 2644

will operate in a combined surround-dominant and left-right mode (i.e., determination of partial correlation of 2 signals as in claims 10-14).

The decoder 200 of the present invention generates a facsimile of the encoded L, R, C, and S channels on each output terminal 207a-207d (output channels L', R', C', and S', respectively). Each output signal is a weighted summation of the left and right input channels as received from input terminals 201a, 201b and selectively attenuated versions of the left and right input channels received from expanders 205a-d. The weights (linearly weight or gain control applied to the different channel signals) used by each signal combiner 206a-d are selected to optimize decoder performance in each of the surround-dominant, center-dominant and left-right operating modes. Selection of the weights for each of the signal combiners 206a-d is discussed below.

Referring now to compressors 202a, 202b shown in FIG. 2, compressors 202a, 202b are each preferably coupled to respective input terminals 201a, 201b via high pass filters (not shown). Compressors 202a, 202b normalize the amplitude of the encoded audio signals on the left and right input channels. The resulting output is a normalized (constant amplitude) version of the respective signals. The normalized outputs of compressors

Art Unit: 2644

202a, 202b are coupled to controller 204. By normalizing the amplitude of the left and right signals, the controller 204 is not affected by amplitude variations in the encoded input signals.

Further more, the various audio signals such as L, R, C and S can be read on as a plurality of channels as claimed (see col. 3, lines 55-65; col. 9, line 58-col. 10, line 9). The waveform or signals similarity regarding the two channel signals' phase being determined is taught by Karagosian (col. 2, lines 44-61; col. 5, lines 17-37) and is used for controlling different normalization modes of the signals.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will

Art Unit: 2644


expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xu Mei whose telephone number is 571-272-7523. The examiner can normally be reached on Monday-Friday (9:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

2



Xu Mei  
Primary Examiner  
Art Unit 2644  
5/13/2005